

CLAIMS

1. A micro-device comprising conductors (13) located on a first level and conductors (4, 5) located on a second level, where the conductors (13) on the first level are supported by a deformable element (11) which is able to trigger by means of a bimetallic effect actuator, and where the effect of the triggering is to modify the distance between the conductors (13) on the first level and the conductors (4, 5) on the second level, characterised in that the bimetallic effect actuator consists of resistors (14, 15) in close and localised contact with the deformable element (11), and in that the resistors (14, 15) are capable, when they are traversed by an electric control current, of expanding sufficiently under the effect of the heat produced by the passage of the electrical control current to cause, through a bimetallic effect, the triggering of the deformable element (11) before the heat produced in the resistors (14, 15) has been able to propagate in the deformable element (11).

2. A micro-device in claim 1, characterised in that the deformable element is a member (11) or membrane.

3. A micro-device as claimed in either claims 1 or 2, characterised in that electrostatic holders are included to hold the deformable element (11) in its position after

it is switched, when the electrical control current is cancelled.

4. A micro-device in claim 3, characterised in that
5 the electrostatic holders include at least one pair of
electrodes (16, 17; 18, 19) facing one another, and where
one of these elements forms a single piece with the
deformable element (11), and the other is positioned such
that, when the deformable element has triggered, the
10 distance between the facing electrodes is minimal.

5. A micro-device in claim 3, characterised in that
the electrostatic holders include at least one pair of
facing electrodes, and where one of these electrodes
15 forms a single piece with the deformable element, the
other being positioned such that, when the deformable
element has triggered the electrodes are in contact with
one another, but separated by electrical insulators.

20 6. A micro-device as claimed in any of claims 1 to 5,
characterised in that the resistors (25) include at least
one layer deposited in the form of a wave.

7. A micro-device as claimed in any of claims 1 to 6,
25 characterised in that the resistors (14, 15) are made
from a material chosen from aluminium, manganese, zinc,
gold, platinum, nickel or inconel 600.

8. A micro-device as claimed in any of claims 1 to 7, characterised in that, with the micro-device being made using micro-technology techniques, the deformable element (11) originates from a layer (10) deposited on a substrate (1).

9. A micro-device as claimed in any of claims 1 to 8, characterised in that the conductors located on the second level include a first line contact (4) and a second line contact (5), and in that the effect of triggering the deformable element is to reduce to zero the distance between the conductors (13) on the first level and the conductors on the second level, with the conductors on the first level thus forming an electrical link between the first contact (4) and the second contact (5), and the micro-device thus constituting a microswitch.

10. A micro-device in claim 9, characterised in that the conductors supported by the deformable element are constituted by a conductive block (13).

11. A micro-device as claimed in any of claims 1 to 8, characterised in that the conductors on the first level and the conductors on the second level constitute respectively a first electrode and a second electrode of a condenser, and where this condenser has a first capacity value before the switching of the deformable

element and a second capacity value after the switching of the deformable element.

12. A micro-device in claim 11, characterised in
5 that an insulating layer of high dielectric constant separates the first electrode and the second electrode of the condenser.

10015531-121701